



Amendments to the claims:

Please cancel claims 2, 3 and 5 - 7 without prejudice or disclaimer of the subject matter therein, and amend claims 1 and 4 and add the following new claims.

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A semiconductor production apparatus for etching a semiconductor wafer arranged in a container and having a film on the surface thereof, by use of a plasma generated in said container, comprising:

~~a detector for detecting the~~ which detects a temporal change of the ~~amount~~ a quantity of an interference light for at least two wavelengths obtained from the surface of ~~said the~~ wafer for a predetermined time period of ~~said processing time~~ an etching process of the wafer; and

~~a determining means for determining the~~ device which determines an etching quantity of the wafer, which varies as long as the etching process proceeds, based upon a particular change arising in the interference light of plural pairs of wavelengths, the plural pairs of the wavelengths corresponding to the etching quantities, respectively, and the particular change being detected by using detected results obtained from the detector ~~condition by comparing a predetermined time with~~ ~~the time length between a time point at which the temporal change amount assumes~~ ~~a maximum value for the light of one of said two wavelengths and a time point at~~ ~~which the amount of light for the other wavelength assumes a minimum value.~~

Claims 2 and 3 (canceled)

4. (currently amended) A semiconductor production apparatus for etching a semiconductor wafer arranged in a container and having a film on the surface thereof, by use of a plasma generated in said container, comprising:

~~a detector for detecting the~~ which detects a temporal change of quantity of a interference of the light for at least of two wavelengths obtained from said wafer a surface of the wafer for during a predetermined time period of said an etching process of the wafer;

~~a comparator means for comparing a predetermined value with the time length between a time point at which the temporal change of the amount of light having one of at least said two wavelengths output from said detector assumes a maximum value and a time point at which the amount of light having the other wavelength assumes a minimum value~~ a determining device which determines an etching quantity of the wafer based upon a particular change arising in the interference light of plural pairs of wavelengths, the plural pairs of wavelengths corresponding to the etching quantities, respectively, and the particular change being detected by using detected results obtained from the detector; and

~~a control unit for adjusting said~~ which adjusts the etching process based upon the determination of the determining device which is made after that a first etching quantity of the wafer is determined based upon the particular change arising in the interference light of a first pair of wavelengths, and based upon the particular change arising in the interference light of the second pair of wavelengths different from the first pair of wavelengths ~~receipt of the output of said comparator means.~~

Claims 5, 6 and 7 (Canceled)

8. (new) A semiconductor production apparatus according to claim 1, wherein the determining device determines the predetermined etching quantity based on a time point at which data corresponding to the interference light of one of the wavelengths assumes a maximum value and a time point at which data corresponding to the interference light of the other of the wavelengths assumes a minimum value, both of which are detected within a predetermined time period.

9. (new) A semiconductor production apparatus according to claim 1, wherein the determining device determines the predetermined etching quantity based on a time point at which a differential value obtained by differentiating time series data from the detector corresponding to the interference light of one of the wavelengths makes a zero-crossing from positive to negative and a time point at which a differential value corresponding to the interference light of the other of the wavelengths makes a zero-crossing from negative to positive, both of which are within a predetermined time period.

10. (new) A semiconductor production apparatus' according to claim 4, wherein the determining device determines the predetermined etching quantity based on a time point at which data corresponding to the interference light of one of the wavelengths assumes a maximum value and a time point at which data corresponding to the interference light of the other of the wavelengths assumes a minimum value, both of which are within a predetermined time period.

11. (new) A semiconductor production apparatus according to claim 4, wherein the determining device determines the predetermined etching quantity based on a time point at which a differential value obtained by differentiating time series data from the detector corresponding to the interference light of one of the wavelengths makes a zero-crossing from positive to negative and a time point at which a differential value corresponding to the interference light of the other of the wavelengths makes a zero-crossing from negative to positive, both of which are within a predetermined time period.